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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,308	01/23/2004	Takehito Yoshida	YOSHIDA=17A	4624
1444	7590	03/28/2006	EXAMINER	
BROWDY AND NEIMARK, P.L.L.C. 624 NINTH STREET, NW SUITE 300 WASHINGTON, DC 20001-5303			DEB, ANJAN K	
			ART UNIT	PAPER NUMBER
			2858	

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/762,308	YOSHIDA ET AL.	
	Examiner	Art Unit	
	Anjan K. Deb	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 2-4 and 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/200499.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>04/16/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 2-4, 6 are objected to because of the following informalities: “clam” should be replaced by --claim--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase “taking in atmosphere¹” is indefinite. Examiner suggests replacing the phrase with -- taking in atmospheric air--, or -- taking in air from the atmosphere-- Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

¹ Atmosphere = the whole mass of air surrounding the earth (Webster’s dictionary 10th edition)

5. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Whitby (US 3,526,828).

Re claim 1, Whitby discloses particle counting (particle concentration) method, comprising the steps of taking in as aerosol (abstract) a process gas in a process apparatus (Fig. 3) for conducting a physical or chemical reaction in a vapor phase (reacting the gases)(column 1 lines 36-39) charging 16 particles existing in the aerosol (column 2 lines 28-30), then mixing the aerosol with a non-charged sheath gas (clean air sheath)(column 5 lines 11-12) flow shaped like a laminar flow (indicated by arrows inside cup member 77 in Fig. 8)(support 79 minimizes turbulence)(column 5 lines 15-17) and applying an electrostatic field (electric field)(see column 4 lines 30-34, and claim 4, column 5 lines 71-73) to the particles existing the aerosol to thereby get the respective particles into traces (sizes) depending on their particle sizes (see claims 4 and 5, column 5 line 71 to column 6 line 2) and detecting particles having specific traces and measuring the number of particles to thereby calculate the particle size distribution (particle concentration) (see also Fig. 2) of the particles floating in the process apparatus.

Re claim 2, Whitby discloses taking in atmospheric air in a clean zone (filtered air in cup member 77)(Fig. 8), in which the process apparatus to be measured is disposed, as a non-charged sheath gas (clean air sheath)(column 5 lines 10-12).

Re claim 3, Whitby discloses all of the claimed limitations as set forth above including detecting the charged particles and modulating electrostatic field intensity applied to a classifying region at low frequency (60 c.p.s)(column 3 lines 49-51) and detecting the charged

particles tuned to the low frequency in a narrow band (column 4 lines 30-40). An amplifying unit is inherently disclosed as required for measuring small currents 19 (Fig. 1).

Re claims 4-6, Whitby discloses all of the claimed limitations as set forth above including the step of applying voltage (V) to a conductive plate 44 (rod) (column 4 lines 30-34) (Fig. 3) after the taken-in aerosol is subjected to a charging process to thereby electrostatically attract and remove floating ions included in the aerosol (column 3 lines 71-73), detecting particles having specific traces (size) and calculating (size distribution function)(column 2 lines 56-62) the number of particles having particle sizes close to a specific particle size, including three or more specific sizes (see particle radius in Fig. 2) to thereby perform a band-pass filtering (size distribution)(column 4 lines 40-46). Measuring aerosol particle mass concentration by filtering (removing) out particle smaller than a given radius as disclosed by Whitby (column 1 line 70 to column 2 line 4) is broadly interpreted as bandpass filtering to thereby predict a particle size distribution in a range covering all particle sizes.

6. Claims 1-2 are rejected under 35 U.S.C. 102(e) as being anticipated by Ebara (US 6,281,972 B1).

Re claim 1, Ebara discloses particle counting (particle size distribution) method, comprising the steps of taking in as aerosol (flow volume Q_a) a process gas in a process apparatus (Fig. 1) for conducting a physical or chemical reaction in a vapor phase (column 4 lines 11-33) charging 41 particles existing in the aerosol (column 3 lines 47-49), then mixing the aerosol with a non-charged sheath gas (flow volume Q_c)(column 4 lines 14-18) flow and applying an electrostatic

field 15 (column 4 lines 22-25) to the particles existing in the aerosol to thereby get the respective particles into traces (sizes) depending on their particle sizes and detecting particles having specific traces and measuring the number of particles to thereby calculate the particle size distribution of the particles floating in the process apparatus. (column 2 lines 23-32).

Re claim 2, Ebara discloses taking in air from atmosphere in a clean zone (flow volume Q_c) in which the process apparatus to be measured is disposed, as a non-charged sheath gas (column 4 lines 14-18).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Graham (US 6,175,227 B1) discloses method and apparatus for sensing and characterizing particles by the Coulter principle.

Pourprix (US 5,150,036) discloses aerosol particle counting method.


Jayne (US 6,040,574) discloses atmospheric-particle analyzer that determines both the size distribution and chemical make-up of atmospheric aerosol particles as a function of particle size.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is 571-272-2228. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached at 571-272-2399.

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A handwritten signature in black ink, appearing to read "Anjan K. Deb". The signature is stylized with a large initial 'A' and a long horizontal stroke at the end.

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Art Unit: 2858

3/17/06